IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

MARC J. SABOURIN

Examiner: M. Alvo

Serial No. 08/907,687

Group Art Unit: 1731

Filing Date: August 8, 1997

For: Method Of Pre-treating Lignocellulose Fiber-Containing Material For The Pulp Making Process

Mail Stop Appeal Brief – Patents
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Transmitted herewith is a **Response to Notice of Non-Compliance with 37 C.F.R. §1.192** (in triplicate) for the above-identified application.

( ) A small entity statement was previously submitted in this application.
( ) A small entity statement is enclosed.
(X) A filing fee for extra claims does not appear required.
( ) A filing fee for extra claims is calculated below:

	No. of Claims Remaining After Amendment	Highest No. of Claims Previously Paid For	No. of Extra Claims	Fee For Small Entity Rate	Fee	Fee For Other Than Small Entity Rate	Fee
Total				x $ 9 = $		x $18 = $	
Indep.				x $39 = $		x $78 = $	
( ) First Presentation of Multiple Dependent Claims				+ $130 = $		+ $260 = $	
				TOTAL = $		TOTAL = $	

(X) It is hereby petitioned that any required extension of time be granted for filing the amendment. An extension of -0- month(s) having a fee of $ -0- appears required.

The Commissioner is hereby requested and authorized to charge Deposit Account 16-2563 of Alix, Yale & Ristas, LLP for any fee, not enclosed herewith, due for any reason in connection with the amendment or this or any other document accompanying the amendment, including (a) any filing fees under 37 CFR 1.16 for the presentation of extra claims and (b) any patent application processing fees under 37 CFR 1.17. A duplicate copy of this sheet is attached.

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I hereby certify that this correspondence and the attachments herein is being deposited on the date below with the United States Postal Service as First Class Mail in an envelope addressed to "Mail Stop Appeal Brief – Patents, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450."

Signature: _____ Reg. No. 28,663 Date August 4, 2003
L. JAMES RISTAS

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of: Marc J. SABOURIN

Application No.: 08/907,687 Examiner: M. Alvo

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For: **Method of Pre-treating Lignocellulose Fiber Containing Material for the Pulp Making Process**

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Alexandria, VA 22313-1450

Sir:

RESPONSE TO NOTICE OF NON-COMPLIANCE WITH 37 C.F.R. §1.192(C)

In reply to the Notice of Non-Compliance mailed July 2, 2003, Applicant encloses herewith, in triplicate, a revised Appendix to the Brief originally filed effective January 21, 2003, with new pages numbered 24–28 as substitutes for original pages 24-27.

Mail Certificate

I hereby certify that this correspondence and the attachments herein is being deposited on the date below with the United States Postal Service as First Class Mail in an envelope addressed to "Mail Stop Appeal Brief – Patents, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450."

Signature: _____ Reg. No. 28,663 Date August 4, 2003
L. JAMES RISTAS

In response to the Examiner's inquiry regarding a related patent case, mentioned by Applicant's attorney during a telephone interview (June 26, 2003), U.S. Patent No. 5,776,305 is the relevant patent. Applicant mentioned this as the patent directed to the so-called "RTS" thermal mechanical pulping process, in which a particularly effective combination of a high preheat pressure (above 75 psig), a short preheat retention time, and a high speed refining disc rotation of greater than 1500 rpm for a double disc refiner or greater than 1800 rpm for single disc refiner operating at a pressure above 75 psig, was described and claimed.

As explained in Applicant's Brief, the subject invention is directed to a novel pre-treatment upstream of the preheating and refining, comprising conditioning and compressing the feed material in a saturated steam environment in the range of 10-25 psig or 15-25 psig. The combination of the pre-treatment to which the present invention is directed, with the RTS preheat/refining that is the subject of U.S. Patent No. 5,776,305, is particularly advantageous. However, Applicant's invention is more broadly applicable to the combination of the novel pre-treatment (conditioning and compressing) in an environment of saturated steam at elevated pressure, with a wider range of thermal mechanical refining than the RTS type refining associated with allowed independent claim 36.

Applicant's independent claim 29 encompasses such combination for all thermal mechanical pulping, but with certain specific recitations regarding the compressing feature of the novel pre-treatment.

Applicant's independent claim 31 is also directed to a broad range of thermal mechanical pulping, wherein the preheating downstream of the pre-treatment is in an environment of saturated steam at a pressure higher than the pressure of the environment where the feed material is compressed as part of the novel pre-treatment, and similarly, the preheated material must be conveyed to the inlet of a primary disc

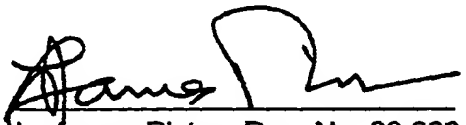
refiner operating at a higher pressure than the pressure in the environment which the compressing associated with Applicant's pre-treatment was accomplished.

Applicant's inventive concept underlying all of the independent claims, as emphasized in the Brief, is directed to the sequence of pre-treatment, preheating, and thermal mechanical refining, wherein the recited features of the pre-treatment are performed in an environment of saturated steam at a specified elevated pressure range. None of the prior art cited by the Examiner shows any form of pre-treatment upstream of the refiner preheater, performed at any substantial pressure above atmospheric. Applicant should be afforded the full scope of his inventive concept as defined in independent claims of varying scope (e.g., claims 29, 31 and 36), and such scope should not be arbitrarily limited to an independent claim that is associated only with the preferred embodiment.

Furthermore, inasmuch as claim 36 has been allowed, claim 24, which depends from claim 36, should also be allowed.

Respectfully submitted,

Marc J. SABOURIN



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LJR/db
Enclosures

(REVISED) APPENDIX - COPY OF ALL PENDING CLAIMS (AS AMENDED)

Rejected Claims on Appeal

2. The method as claimed in 31, wherein said compression is performed in a compression screw device in a range of from 4:1 to 8:1 of the non-compressed volume of said conditioned feed material.

7. The method as claimed in claim 2, wherein said conditioning of said feed material is performed for a period of time in the range of 3-180 seconds.

23. The method of claim 31, wherein the step of preheating is preceded by the steps of

discharging the destructured material into a conveyer at substantially atmospheric pressure;

conveying the discharged material into a storage bin at substantially atmospheric pressure; and

conveying material from the bin by a plug screw feeder through a pressure barrier into a higher pressure environment where said step of preheating is performed.

24. The method of claim 36, wherein the step of preheating is preceded by the steps of

discharging the destructured material into a conveyer at substantially atmospheric pressure;

conveying the discharged material into a storage bin at substantially atmospheric pressure; and

conveying material from the bin by a plug screw feeder through a pressure barrier in to the higher pressure environment where said step of preheating is performed.

25. The method of claim 31, wherein the steps of conditioning and compressing are both performed in a substantially similar environment of saturated steam.

26. The method of claim 31, wherein said saturated steam environment for conditioning and compression is at a saturated pressure corresponding to a temperature no greater than about 120° C and the steps of preheating and conveying the destructured material are performed at a saturated pressure corresponding to a temperature greater than about 120° C.

27. The method of claim 26, wherein the conditioning of said feed material is performed for a period of time in the range of 3-60 seconds.

29. A method for producing thermo-mechanical pulp from lignocellulose fiber-containing chip feed material comprising the steps of:

first conditioning said fiber containing feed material in an environment of saturated steam at a pressure in the range of about 15-25 psi to produce a conditioned feed material;

subsequently compressing said conditioned feed material in a screw press in an environment of saturated steam at a pressure in the range of about 15-25 psi at a compression ratio of at least about 4:1 to destructure said fibers;

subsequent to the step of compressing, preheating the destructured material in an environment of saturated steam; and

immediately following the step of preheating, refining said material to form lignocellulose pulp.

31. A method for producing thermo-mechanical pulp in a primary disc refiner from lignocellulose fiber-containing chip feed material comprising the steps of:

first conditioning said fiber-containing feed material in an environment of saturated steam at an elevated pressure in the range of about 15-25 psi to produce a conditioned feed material;

directly thereafter compressing said conditioned feed material in an environment of saturated steam at an elevated pressure in the range of about 15-25 psi to destructure said fibers without significant breakage across grain boundaries;

pre-heating the destructed material in an environment of saturated steam at a pressure higher than the pressure of the environment at which the material was destructured; and

conveying the pre-heated material to the inlet of a primary disc refiner operating at a higher pressure than the pressure of the environment at which the material was destructured.

32. The method of claim 27, wherein said compression is performed in a compression screw device in the range of from 4:1 to 8:1 of the non compressed volume of said conditioned feed material.

33. The method of claim 31, wherein the conditioning of said feed material is performed for a period of time in the range of 3-60 seconds.

34. The method of claim 31, wherein said step of compressing said conditioned feed material is performed in a variable speed compression screw device in the range of from 4:1 to 8:1 of the non compressed volume of said conditioned feed material.

35. The method of claim 34, wherein the conditioning of said feed material is performed for a period of time in the range of 3-30 seconds.

Allowed Claims

36. A method for producing thermo-mechanical pulp in a primary disc refiner from lignocellulose fiber-containing chip feed material comprising the steps of:

first conditioning said fiber containing feed material while conveyed through a first chamber having an environment of saturated steam at an elevated pressure in the range of about 10-25 psi to produce conditioned feed material;

conveying and compressing the conditioned feed material through a second chamber having an environment of saturated steam at elevated pressure in the range of about 10-25 psi to produce a pretreated material having destructured fibers without significant breakage across grain boundaries;

preheating the pretreated material in a third chamber in an environment of saturated steam at a pressure above 75 psi and above the glass transition temperature of the lignin in the material, for a period of time less than 30 seconds;

conveying the pre-heated material to the inlet of a primary disc refiner operating at a pressure above 75 psi and a temperature above the glass transition temperature of the lignin; and

refining the material at a disc speed of rotation that is greater than 1500 rpm for a double disc refiner or greater than 1800 rpm for a single disc refiner.

37. The method of claim 36, wherein the conditioning of said feed material is performed for a period of time in the range of 3-60 seconds.

38. The method of claim 37, wherein the preheat time period is in the range of about 5-10 seconds.

39. The method of claim 36, wherein the preheat time period is 15 seconds or less.

40. The method of claim 39, wherein the conditioning of said feed material is performed for a period of time in the range of 3-60 seconds.